

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2834

5. Claims 1-3, 5-7, 11, 13-15, 17-19, 22-25 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunakubo (US PN 5,416,375) and in view of Nonaka (US PN 5,267,796).

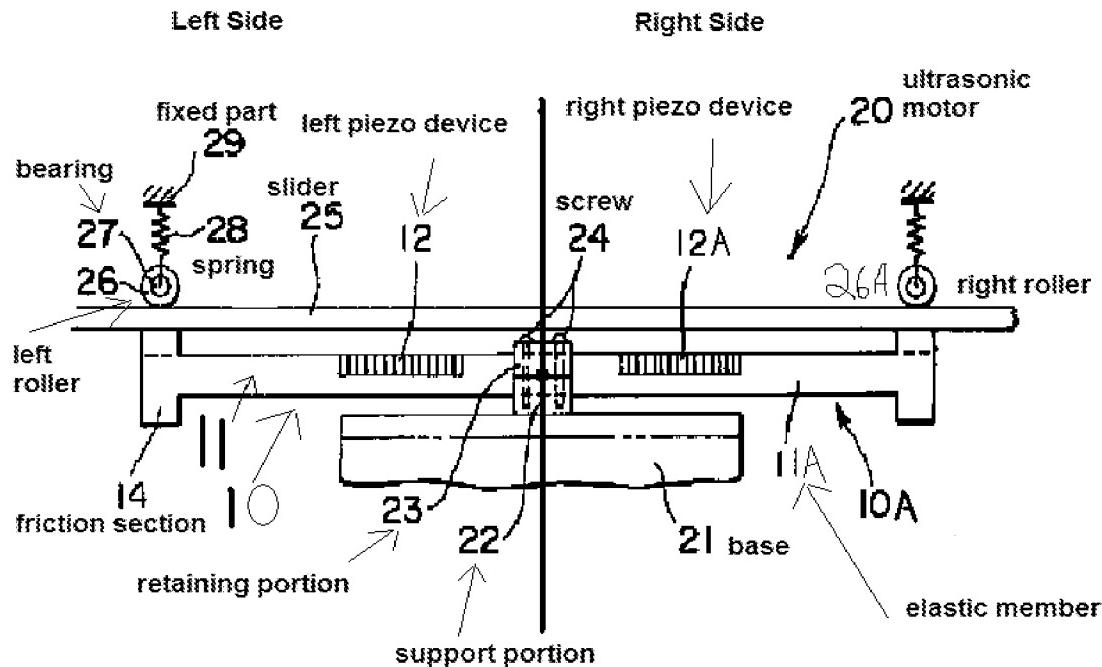


Figure 2

6. Considering claims 1 and 5, Kunakubo (Figure 2) teaches a drive device (paragraph 0012) of an ultrasonic linear motor (10) in which a rail (25) and a base body (21) are driven movably relative to one another by a driving part interposed between the rail and the base body, at least a pair of right (26A) and left rollers (26) making contact with side faces of the rail, at least a pair of right (10A) and left ultrasonic (10) vibrators for applying a turning force individually to each of the pair of right and left rollers, an urging member (28) that urges the ultrasonic vibrator and the rollers toward the side

faces of the rail; wherein each of the pair of right and left ultrasonic vibrators is comprised of a piezoelectric device (12, 12A) and vibrating elastic member (11, 11A) integrally affixed to the piezoelectric device, and each of the pair of right and left rollers is adapted to be turned by vibration of the respective elastic member and two polarized regions (12, 12A, col. 5 lines 39-42); wherein each of the pair of right and left ultrasonic vibrators and each of the pair of right and left rollers are supported by a respective holder member (14) disposed on the base body, the holder members being urged by the urging member (23) toward the side faces of the rail. The limitation of applying AC voltage to only one of the polarized regions is a limitation directed to the method of driving the device and not the structure itself and therefore is given little patentable weight.

However, Kunakubo does not teach the base body is movably supported on an upper face of the rail by bearings disposed on a bottom face of the base body, and the bearing bear a load of the base body.

In the same field of endeavor, Nonaka teaches the base body is movably supported on an upper face of the rail by bearings disposed on a bottom face of the base body, and the bearing bear a load of the base body (col. 2 lines 7-11) for the benefit of moving the slider.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the base body is movably supported on an upper face of the rail by bearings disposed on a bottom face of the base body, and the

bearing bear a load of the base body with Kunakubo's device for the benefit described above.

7. Considering claim 2, Kunakubo (Figure 2) teaches the claimed invention as described above and the holding frame (23).

8. Considering claims 3 + 7, Kunakubo teaches wherein the rail has an upper face (22) for bearing the load of the base body (21) and a bottom face (21) of the base body.

However, Kunakubo does not teach the sloping sides surfaces from on the left and right side the rollers being mounted on the opposing faces making contact with the sloping side faces of the rail.

In the same field of endeavor, Nonaka (Figure 12) teaches the sloping sides surfaces from on the left and right side the rollers (60) being mounted on the opposing faces making contact with the sloping side faces of the rail (53).

9. Considering claim 6, Kunakubo teaches the claimed invention as described above in claim 2.

10. Considering claims 11 and 15, Kunakubo teaches wherein the right roller and the left roller rotate in opposite directions (col. 6 lines 50-60).

11. Considering claims 13 and 17, Nonaka teaches the bearing are ball bearings disposed between the bottom face of the base body and the upper face of the rail at opposite corners of the rail (col. 1 lines 22-27).

12. Considering claims 18 and 24, Funakubo (Figure 15) teaches a voltage source wherein the piezoelectric device includes two polarized regions (118). It would be obvious that a piezoelectric device would have a voltage source to drive the device.

The method of how the two polarized regions operates is not germane to the issue of patentability of the device itself. Therefore, this limitation has been given little patentable weight.

13. Considering claims 19 and 25, Funakubo (Figure 15) teaches wherein the two polarized regions of the piezoelectric device are in contact (118) with each other.

14. Considering claims 22 and 28, Funakubo (Figure 2) teaches wherein the urging member (23) is in contact with the respective holder member (14).

15. Considering claims 23 and 29, Funakubo (Figure 2) teaches wherein the urging member is a spring (28).

16. Claim 12, 16, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunakubo (US PN 5,416,375), in view of Nonaka (US PN 5,267,796) and in view of Stotzel (US PN 4,978,233).

17. Considering claims 12 and 16, Kunakubo in view of Nonaka does not teach the bearings are bar-shaped bearings disposed between the bottom face of the basebody and the upper face of the rail.

In the same field of endeavor, Stotzel (Figures 2 + 3) teaches the bearings (6) are bar-shaped bearings disposed between the bottom face of the base body (5) and the upper face (9c) of the rail for the benefit of moving the slider. Although Stotzel teaches a thin film plate material as the bearing a simple substitution of one known element (a bar-bearing) for another (thin film plate material) to obtain predictable results.

Therefore, it would have been obvious to one of ordinary skill in the art to replace the bar-bearing with a thin film plate material, because one of ordinary skill in the art would have been able to carry out such a substitution, and the results were reasonably predictable.

18. Considering claims 20 and 26, Kunakubo in view of Nonaka does not teach the right roller is located between the right ultrasonic vibrator and one of the side faces of the rail contacting the right rollers, and the left roller is located between the left ultrasonic vibrator and another of the side faces of the rail contacting the left roller.

19. In the same field of endeavor, Stotzel (Figure 12) teaches the right roller (60) is located between the right ultrasonic vibrator (55) and one of the side faces of the rail (53) contacting the right rollers, and the left roller (60) is located between the left ultrasonic vibrator (55) and another of the side faces of the rail (53) contacting the left roller.

Allowable Subject Matter

20. Claims 21 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The examiner could not find prior art that teach teaches a shaft of each of the left roller and right roller is located between a top and a bottom of the respective holder member.

Response to Arguments

21. Applicant's arguments, see pages 9-12, filed 25 July 2008, with respect to claim 1 have been fully considered and are persuasive. The rejection of claim 1 has been withdrawn. However, upon further inspection a new rejection made with Kunakubo (US PN 5,416,375) and in view of Nonaka (US PN 5,267,796).

22. Applicant's arguments, see page 9, filed 25 July 2008, with respect to the objections of claims 11 and 15 have been fully considered and are persuasive. The objection of claims 11 and 15 have been withdrawn.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN P. GORDON whose telephone number is (571)272-5394. The examiner can normally be reached on Monday-Thursday 8:00-5:30, Friday 7:30-4:00.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2834

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas M. Dougherty/
Primary Examiner, Art Unit 2834

/B. P. G./
Examiner, Art Unit 2834
/Bryan P Gordon/
Examiner, Art Unit 2834